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### 1994 Feature Article - Projections of Australia's Population Growth and Distribution

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Australia's average annual rate of population growth in 1985-1991 was 1.5 per cent, and is projected to fall below 1.0 per cent sometime between 2006 and 2016, and to drop to between 0.3 and 0.6 per cent by 2041. This is lower than the lowest growth rates experienced this century, when in the early 1930's the growth rate was about 0.7 per cent.

This article discusses projected results, spanning the period from 1993 to 2041, indicating the size, likely structure and distribution of the future population, given various assumptions made about the components of change - births, deaths and migration.

Three alternative assumptions have been made about future births, one assumption about future deaths, two alternative assumptions about future levels of overseas migration and two alternative assumptions about interstate migration.

Using various combinations of these assumptions, eight alternative projections can be made of the population. This article focuses on four of these eight scenarios, identified as Series A to D in Projections of the Populations of Australia, States and Territories 1993 to 2041, cat. no. 3222.0. Series A assumes unchanged fertility rates, a moderate rise in net migration, and large net interstate migration gains and losses for most states and territories. Series B, C and D differ (from series A) only in assuming lower interstate migration, a higher fertility rate and a large rise in net migration respectively.

The base resident population used for the projections is the published estimate of 17.7 million at 30 June 1993.

#### TOTAL POPULATION AND AGE STRUCTURE

United Nations projections show that the rapidly growing populations of South-East Asia present prospects of a widening gap between those countries and Australia in terms of population size. Indonesia's population, already ten times greater than Australia's, could increase to 283 million in the year 2025 or twelve times that of Australia (23 million). Malaysia's population, which is currently about the same size as Australia's, could rise to 31 million in the year 2025, exceeding the population of Australia by about 8 million or 35 per cent.

#### Total population

The projections show the population rising consistently throughout the projection period, 1993 to 2041.

**TABLE 1. PROJECTED POPULATION, SELECTED COUNTRIES**

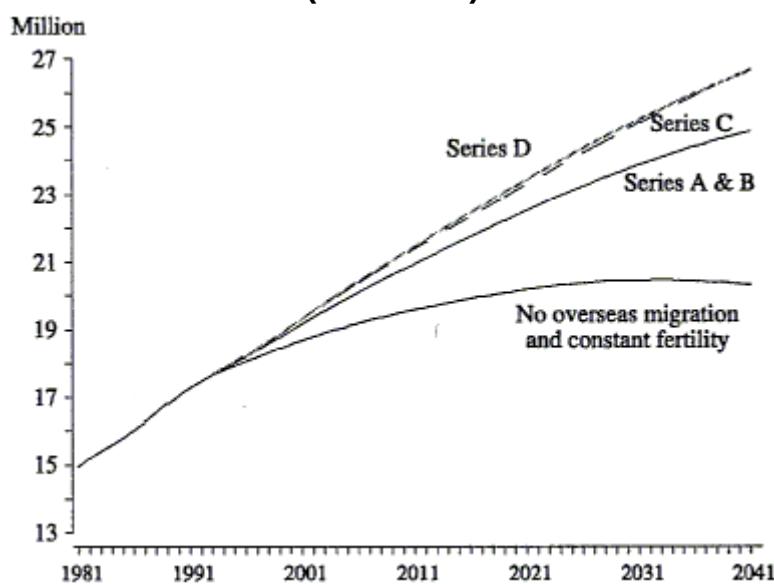
Country	Projected population(a). Millions				
	1990(b)	1995	2000	2005	2025
Australia (Series NB)	17.1	18.0	19.0	19.9	23.1
Canada	26.6	28.5	30.4	32.3	38.4
China	1,153.5	1,238.3	1,309.7	1,361.8	1,539.8
Germany	79.5	81.3	82.6	83.5	83.9
Greece	10.1	10.3	10.3	10.4	10.1
Indonesia	184.3	201.5	218.0	232.4	283.3
Italy	57.7	57.9	58.1	58.4	56.2
Japan	123.5	125.9	128.1	129.8	127.0
Korea (South)	43.4	45.2	46.9	48.3	50.3
Malaysia	17.9	20.1	22.3	24.3	31.3
Netherlands	14.9	15.5	16.1	16.6	17.7
New Zealand	3.4	3.6	3.7	3.9	4.3
Papua New Guinea	3.9	4.3	4.9	5.4	7.8
United Kingdom	57.4	58.1	58.8	59.4	60.3
USA	250.0	263.1	275.3	285.9	322.0

(a) Exponential rate of growth.

Source: World Population Prospects -The 1992 Revision, UN, New York 1993.

Commencing from 17.7 million in 1993 it rises to 19.0 million in the year 2000 and 20.0 million in the year 2005. At the end of the projection period, in the year 2041, it has risen to between 24.9 and 26.7 million depending on the combination of assumptions made as to the components of change (see Figure 1).

**FIGURE 1. POPULATION OF AUSTRALIA: ACTUAL (1981-1993) AND PROJECTED (1994-2041)**



Although the resulting rate of growth of the population varies for different periods during the 48

years of the projection, there is a clear long-term trend declining from current rates of approximately 1.0 to 1.2 per cent annually to between 0.3 and 0.6 per cent in the year 2041. Rates as low as this have not been experienced in Australia since regular records of population growth began about the turn of the century.

**TABLE 2. TOTAL NUMBER AND GROWTH RATES OF PROJECTED POPULATION, AUSTRALIA**

Year/Period	Series				
	A/B	C	D	A/B/D with no overseas migration	C with no overseas migration
Population (millions)					
1993	17.67	17.67	17.67	17.67	17.67
2001	19.17	19.30	19.31	18.68	18.80
2011	20.95	21.38	21.45	19.58	19.98
2021	22.53	23.28	23.43	20.18	20.87
2031	23.87	25.09	25.21	20.46	21.56
2041	24.86	26.68	26.67	20.30	21.91
Average annual growth rate (per cent) (a)					
1993-2001	1.03	1.11	1.12	0.70	0.78
2001-2011	0.89	1.03	1.06	0.48	0.61
2011-2021	0.73	0.86	0.89	0.30	0.44
2021-2031	0.58	0.75	0.74	0.14	0.33
2031-2041	0.41	0.62	0.56	-0.08	0.16

(a) Exponential rate of growth.

If it is assumed that there is no net gain from overseas migration, the rate of growth would be even slower, with the projected total population in the year 2041 reaching only 21.9 million under the high fertility assumption or 20.3 million under the constant fertility assumption. The total Australian population under the constant fertility assumption in Series A, B and D would actually begin to decline after reaching a peak of 20.5 million in the year 2032.

### Age structure

As growth slows, the population ages progressively with the median age of 33.0 years in 1993 rising to between 35.2 and 35.4 in the year 2001, and to between 39.4 and 41.8 in the year 2041 (see Table 3).

**TABLE 3. MEDIAN AGE OF PROJECTED POPULATION, AUSTRALIA**

Year/Period	A/B	Series			
		C	D	A/B/D with no overseas migration	C with no overseas migration
Population ('000)					
1993	33.02	33.02	33.02	33.02	33.02
2001	35.40	35.17	35.30	35.77	35.54
2011	37.99	37.28	37.71	38.91	38.20
2021	39.67	38.38	39.26	41.12	39.74
2031	40.93	38.93	40.43	42.68	40.51
2041	41.84	39.40	41.29	43.87	41.03

The ageing of the population occurs at an even higher rate without overseas migration, and if it is

assumed that there is no change in current fertility rates, the median age rises to 43.9 in the year 2041.

The population aged 65 and over increases significantly, from 2.1 million in 1993 to 3.1 million in the year 2013, 4.1 million in the year 2023 and 5.1 million in the year 2035. In 2041 it is between 5.5 and 5.7 million. As a proportion of the population these projected numbers represent increases from 11.7 per cent in 1993 to between 20.5 and 22.0 per cent in 2041. The highest annual rates of increase in the size of population aged 65 years or more occur during the period 2011-2021, when the peak of the baby boom generations (born from the mid-1940s to the 1960s) reach retirement ages (see Table 4).

**TABLE 4. TOTAL NUMBER AND GROWTH RATES OF PROJECTED POPULATION AGED 65 YEARS AND OVER, AUSTRALIA**

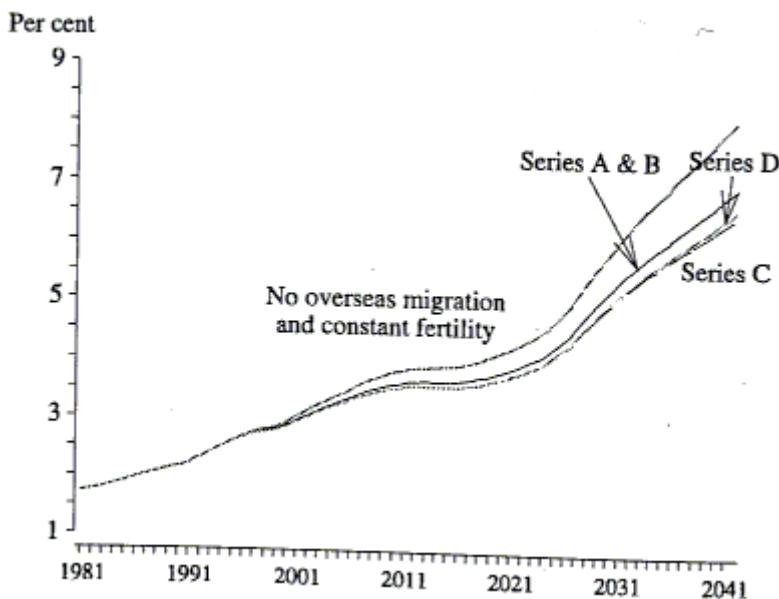
Year/Period	Series			
	A/B	C	D	With no overseas migration
Population ('000)				
1993	2,061.0	2,061.0	2,061.0	2,061.0
2001	2,359.3	2,359.3	2,363.5	2,342.9
2011	2,889.3	2,889.3	2,906.7	2,835.5
2021	3,887.5	3,887.5	3,926.7	3,770.5
2031	4,843.9	4,843.9	4,933.0	4,589.8
2041	5,477.6	5,477.6	5,675.2	4,986.6
Average annual growth rate (per cent) (a)				
1993-2001	1.70	1.70	1.73	1.62
2001-2011	2.05	2.05	2.09	1.93
2011-2021	3.01	3.01	3.05	2.89
2021-2031	2.22	2.22	2.31	1.99
2031-2041	1.24	1.24	1.41	0.83

(a) Exponential rate of growth.

The annual rate of increase in the size of population aged 80 years or more is lower during the decade 2011 to 2021 compared with other periods. This is a reflection of the decline in fertility that occurred in Australia during the depression years and prior to World War II (from a total fertility rate of 2.8 children per woman in 1927 to 2.1 children per woman in 1935). Survivors of the relatively smaller birth cohorts resulting from this decline reach 80 years of age and over between the years 2011 and 2021. On the other hand, the number of people aged 80 years or more rises sharply between 2021 and 2031, due to the effect of the 'baby boom' generation who reach age 80 years and more during this period.

Although the projected number of people aged 65 and over would be smaller without any gains from overseas migration (see Table 4) compared with other series, they would comprise a higher proportion of the total population (see Figure 2).

**FIGURE 2. PROJECTED PERCENTAGE OF TOTAL POPULATION AGED 80+, AUSTRALIA**



The number of elderly people (aged 65 and over) would be greatest in absolute terms if overseas migration gains are assumed to be high (Series D). They are not, within the span of this projection, affected by the choice of fertility assumptions.

The tempo of the ageing process is also influenced by the declining proportion of the population in the age range 0-14 years, thereby gradually raising the median age for the total population.

In absolute terms the number of children aged 0-14 years grows to between 4.0 and 4.4 million in the year 2011, and between 4.3 and 5.2 million in 2041. As a proportion of total population, however, these projected figures translate to declines from 21.7 per cent in 1993 to between 19.3 and 20.8 per cent in 2011, and to between 17.3 and 19.4 per cent in 2041 (see Table 5).

**TABLE 5. TOTAL NUMBER AND GROWTH RATES OF PROJECTED POPULATION AGED 0-14 YEARS, AUSTRALIA**

Year/Period	Series				
	A/B	C	D	A/B/D with no overseas migration	C with no overseas migration
Population (millions)					
1993	3,831.1	3,831.1	3,831.1	3,831.1	3,831.1
2001	3,972.6	4,098.9	4,011.9	3,844.9	3,968.0
2011	4,040.9	4,438.6	4,179.7	3,679.4	4,051.7
2021	4,086.1	4,565.9	4,308.5	3,511.1	3,939.1
2031	4,226.4	4,870.4	4,526.9	3,463.8	4,027.3
2041	4,304.3	5,167.2	4,689.8	3,337.9	4,075.9
Average annual growth rate (per cent) (a)					
1993-2001	0.45	0.85	0.58	0.05	0.44
2001-2011	0.17	0.80	0.41	-0.44	0.21
2011-2021	0.11	0.28	0.30	-0.47	-0.28
2021-2031	0.34	0.65	0.50	-0.14	0.22
2031-2041	0.18	0.59	0.35	-0.37	0.12

(a) Exponential rate of growth.

The population aged 15-64 years rises from 11.8 million in 1993 to between 15.1 and 16.3 million in the year 2041, but its rate of growth declines considerably over the period. As a proportion of the total population there is little change until the second decade of the next century when it begins to decline (see Figure 8).

## BIRTHS AND DEATHS

In 1992-93, there were 265,600 births and 121,800 deaths, resulting in the natural increase of the population of 143,800 persons or 8.2 per thousand mean population.

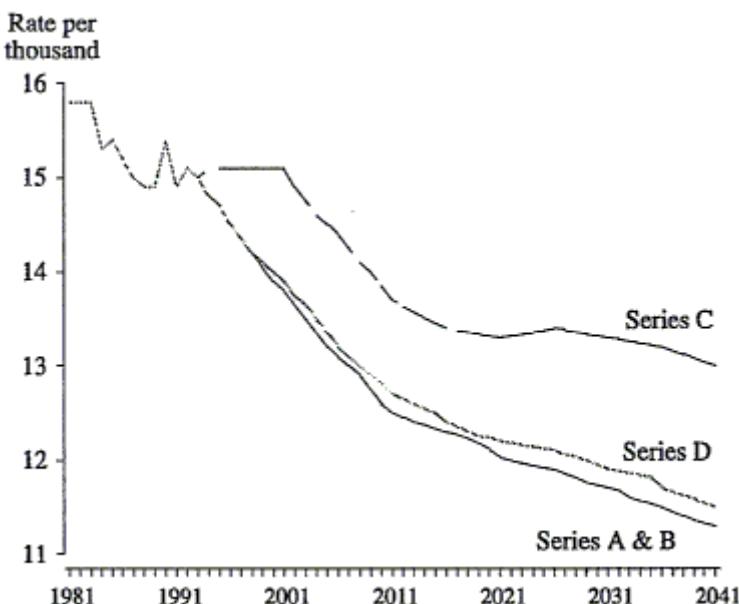
Under Series A/B, where constant fertility and low overseas migration gains are assumed, the projected number of births, after dipping slightly in the initial years, rises to only 281,100 by the end of the projection period. Deaths on the other hand, more than double over the same period, rising steadily to 267,300 by the year 2041. This entails a decline in natural increase from 139,300 in 1994 to only 13,800 in 2041 or 0.6 per 1,000 mean population, an unprecedented low level.

Under Series D, which has constant fertility but high overseas migration gains, births rise steadily, eventually reaching 306,000 in the year 2041. Deaths also rise steadily (there is little difference between the four series in the number of projected deaths) reaching 274,600 in 2041. The result again entails declining natural increase of much the same dimensions as Series A/B. The rate of natural increase in the year 2041 would be 1.2 per 1,000 mean population.

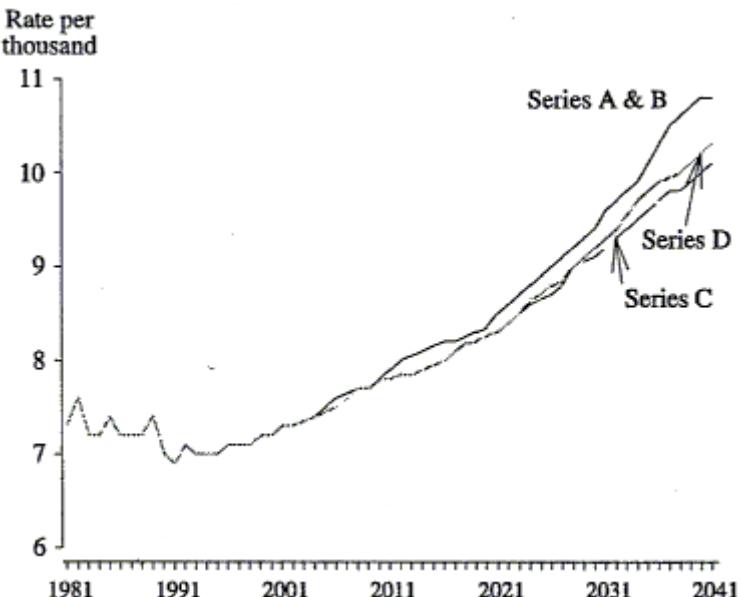
Under Series C which combines high fertility rates with low overseas migration gains, births rise to 292,000 in the year 2011 and to 345,200 in 2041. Natural increase is higher than in the other series, but nevertheless still declining (after a small upturn in the latter part of the 1990's). The rate of natural increase in the year 2041 falls to 2.9 per 1,000 mean population.

In general, it can be said that the projections show a declining crude birth rate (births per 1,000 mean population) and a rising crude death rate (deaths per 1,000 mean population) with the two rates converging to a point which occurs close to or soon after the end of the projection period (see Figures 3 and 4). In other words, regardless of which combination of assumptions is chosen, the net effect is a quite rapid fall in the rate of natural increase.

**FIGURE 3. PROJECTED CRUDE BIRTH RATES, AUSTRALIA**



**FIGURE 4. PROJECTED CRUDE DEATH RATES, AUSTRALIA**



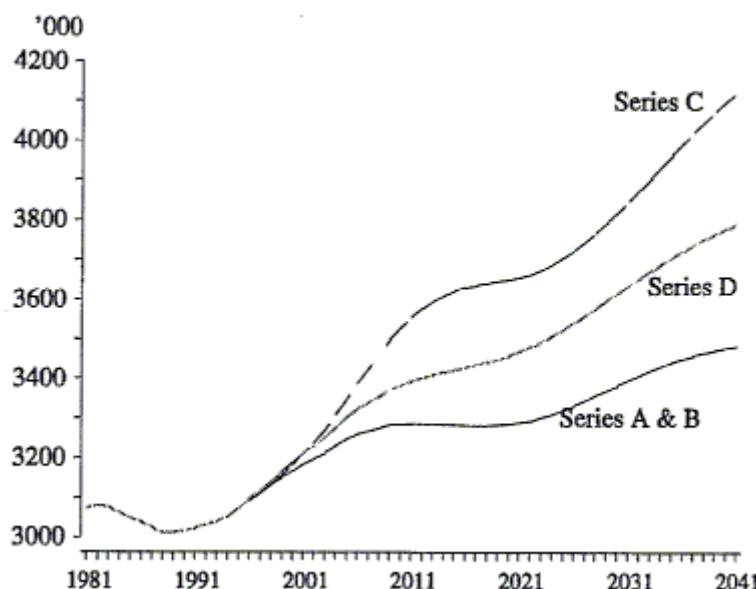
Without gains from overseas migration, the rate of natural increase would also fall, particularly if fertility was to remain constant (Series A/B/D) in which case the number of deaths would begin to exceed the number of births from year 2035 onwards.

## POPULATION OF SCHOOL AND TERTIARY EDUCATION AGE

### Population of primary and secondary school age

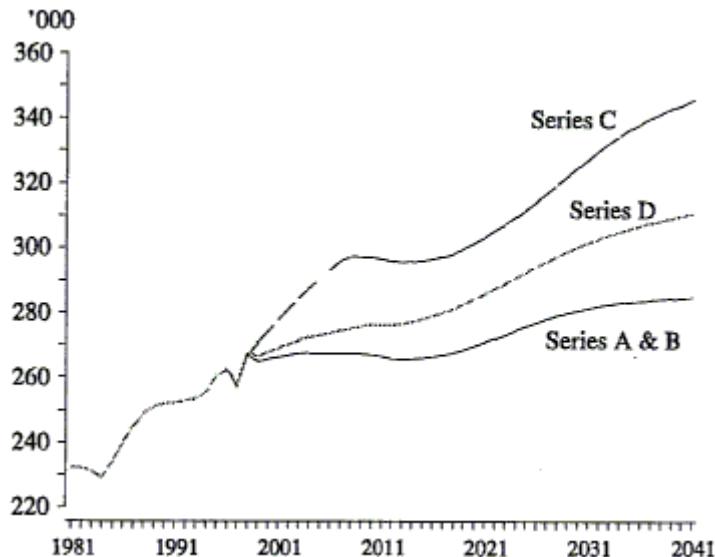
The population of primary and secondary school age (5 to 16 years) rises steadily throughout the projection period, increasing from 3.0 million in 1993 to between 3.3 and 3.6 million in 2011 and further, to between 3.5 and 4.1 million in the year 2041 depending on which combination of assumptions is chosen. The numbers are greatest when fertility is assumed to be high, as with Series C (see Figure 5).

**FIGURE 5. PROJECTED POPULATION OF SCHOOL AGE (5-16), AUSTRALIA**



The number of children reaching school age (i.e. aged 5 years) is also greatest when fertility is assumed to be high (Series C) rising from 253,500 in 1993 to 296,400 in 2011 and 345,400 in the year 2041. Under Series D, when fertility is constant but gains from overseas migration are high, the number of 5 year olds rises to 276,300 in 2011 and 310,700 in 2041. Lastly, when fertility is constant and gains from overseas migration are low, the number rises only slowly, to 266,500 in 2011 and 284,800 in 2041. Fluctuations in the numbers around the period 1995 to 1997 are in part due to irregularities in the processing of birth registrations from 1990 to 1992 in NSW, rather than actual occurrences of births (see Figure 6).

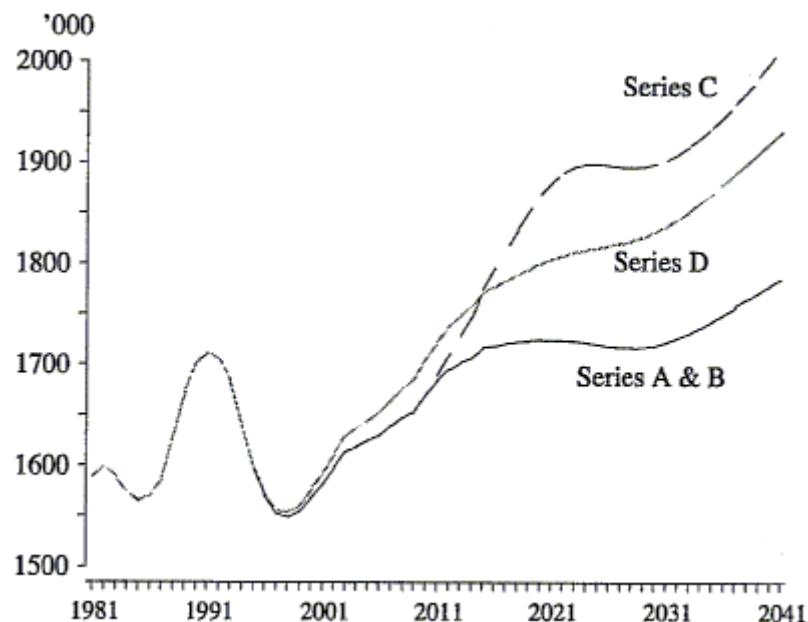
**FIGURE 6. PROJECTED POPULATION OF SCHOOL STARTING AGE (5), AUSTRALIA**



### **Population of tertiary education age**

The size of the population of tertiary age (17 to 22 years) shows a contraction in the initial part of the projection period, falling by about 130,000, from 1.7 million in 1993 to 1.6 million in the year 1998. This reflects the fall in births which occurred in the 1970s when these people were born. After 1998, however, population numbers of tertiary age rise gradually to about 1.7 million again in 2011 and between 1.8 and 2.0 million in 2041 (see Figure 7).

**FIGURE 7. PROJECTED POPULATION OF TERTIARY EDUCATION AGE (17-22), AUSTRALIA**



## POPULATION OF WORKING AGE

The population of working age (15-64 years) increases steadily throughout the projection period for all series. With the most conservative combination of assumptions - constant fertility and low overseas migration gains (Series A/B) - it rises from 11.8 million in 1993 to 12.8 million in 2001, 14.8 million in 2031 and 15.1 million in the year 2041. With high fertility and low overseas migration gains (Series C) it rises even faster, totalling 16.0 million in 2041. Numbers are greatest, however, with Series D assumptions (constant fertility and high overseas migration gains) reaching a final figure of 16.3 million in the year 2041 (see Table 6).

**TABLE 6. TOTAL NUMBER AND GROWTH RATES OF PROJECTED POPULATION OF WORKING AGE (15—64 YEARS), AUSTRALIA**

Year/Period	Series				
	A/B	C	D	A/B/D with no overseas migration	C with no overseas migration
Population (millions)					
1993	11,769.4	11,769.4	11,769.4	11,769.4	11,769.4
2001	12,837.7	12,837.7	12,935.2	12,488.9	12,488.9
2011	14,022.3	14,048.1	14,365.8	13,068.9	13,094.5
2021	14,554.3	14,827.8	15,193.8	12,896.8	13,158.0
2031	14,803.7	15,379.2	15,752.7	12,405.6	12,938.4
2041	15,076.5	16,034.3	16,301.6	11,979.5	12,847.7
Average annual growth rate (per cent) (a)					
1993-2001	1.09	1.09	1.09	0.74	0.74
2001-2011	0.89	0.91	1.06	0.46	0.48
2011-2021	0.37	0.54	0.56	-0.13	0.05
2021-2031	0.17	0.37	0.36	-0.39	-0.17
2031-2041	0.18	0.42	0.34	-0.35	-0.07

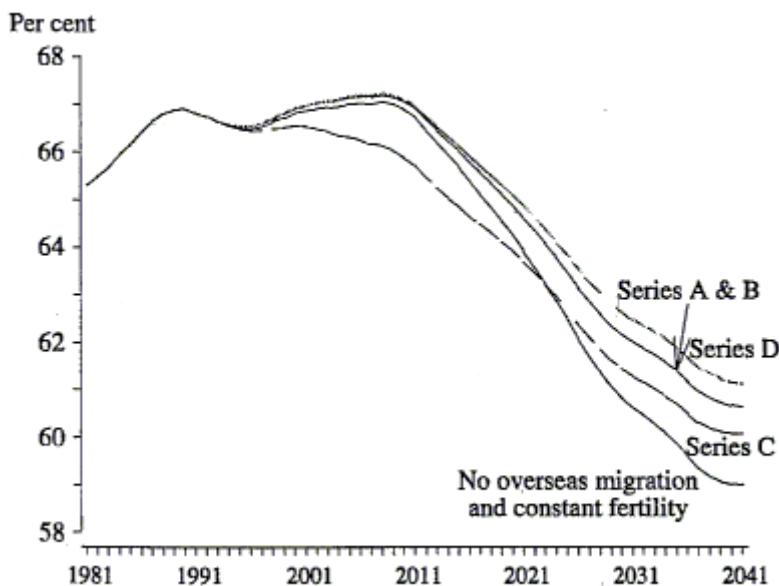
(a) Exponential rate of growth.

Without overseas migration gains on the other hand, the working age population rises much more slowly, and then only for a limited time before it begins to contract. For Series A, B and D, with constant fertility, this contraction commences around the year 2011, while with Series C, with high fertility, it commences around the year 2021.

For all series the rate of increase gradually slows, commencing at approximately 1 per cent per annum and falling to between 0.2 and 0.4 per cent at the end of the projection period.

With or without migration, the rate of growth of the working age population is slower than that of the population as a whole. As a proportion of population the 15-64 year age group never rises more than a fraction above the level that is now current (66.6 per cent in 1993) and ultimately falls. Series A/B and D show a period of stability before proportional values begin to actually fall but Series C begins falling from the commencement of the projection period. At best there is a period of stability lasting from 1993 to 2011 (Series D). By the year 2041 the proportion will have fallen to almost 60.0 per cent, with very little difference between the series. Without migration it would be 1 or 2 percentage points lower (see Figure 8).

**FIGURE 8. PROJECTED PERCENTAGE OF TOTAL POPULATION AGED 15-64, AUSTRALIA**



People aged 15 to 24, those who are entering the work force for the first time, decline in numbers for the remainder of the 1990's, after which they rise steadily for the rest of the projection period. The rate of increase after 1999 varies according to which combination of assumptions is chosen. Commencing from 2.7 million in 1993, all series decline to 2.6 million in 1999. Series A/B then rise at a very slow rate, finally reaching 3.0 million in the year 2041.

Series D rises at a slightly higher rate, reaching 3.2 million and Series C (with high fertility) grows most strongly reaching 3.4 million in 2041.

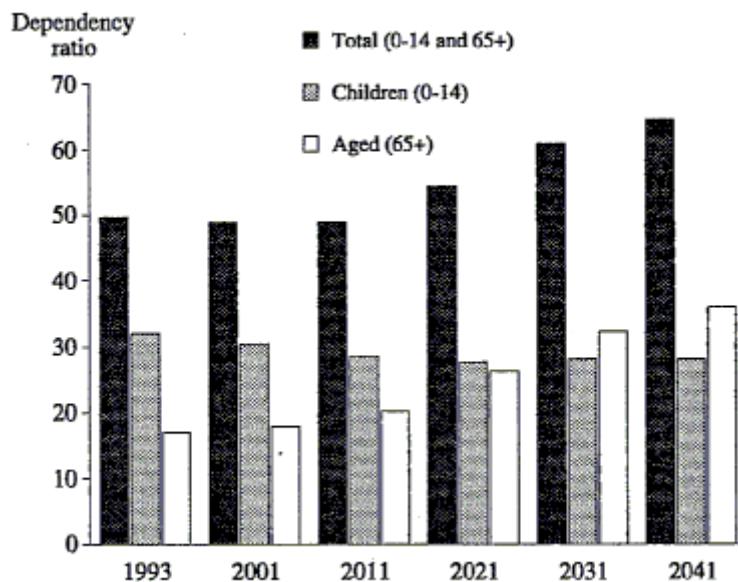
## DEPENDENCY RATIO

The dependency ratio relates the number of dependents in the community, defined as people aged under 15, and 65 and over, to the number of people of working age (15 to 64 years). For a given population it furnishes an indication of how many people there are who are dependent on

people in the standard working age groups.

The total dependency ratio in Australia in 1993 was 50.1. It has been rising marginally since 1990 after a long period of decline in the 1970s (in 1971 it was 58.8) and 1980s.

**FIGURE 9. DEPENDENCY RATIO (PER 100 PERSONS OF WORKING AGE, 15-64), SERIES A & B, AUSTRALIA**



The projections show that the dependency ratio fluctuates about its current level until about the year 2011 when it begins to rise. This increase is quite pronounced, starting from between 49.3 and 52.2 in the year 2011 and going to between 63.6 and 66.4 in 2041. These levels have not been experienced in Australia since the beginning of the twentieth century when families were large but mortality was also high. At that time the weight of the dependents fell in the 0-14 age group. In the twenty-first century, on the other hand, it is the aged category, 65 years and over who will form the majority of the dependents. This is the inevitable result of fertility remaining at low levels over a long period and at the same time mortality being in decline.

Dependency ratios for the under 15 and 65 and over age groups separately, illustrate this point (see Table 7).

**TABLE 7. DEPENDENCY RATIOS(a), AUSTRALIA**

Series	Dependency type								
	Children (0-14)			Aged (65+)			Total		
	2001	2021	2041	2001	2021	2041	2001	2021	2041
A/B	30.9	28.1	28.5	18.4	26.7	36.3	49.3	54.8	64.9
C	31.9	30.8	32.2	18.4	26.2	34.2	50.3	57.0	66.4
D	31.0	28.4	28.8	18.3	25.8	34.8	49.3	54.2	63.6
With no overseas migration									
-									
A/B/D	30.8	27.2	27.9	18.8	29.2	41.6	49.5	56.5	69.5
C	31.8	29.9	31.7	18.8	28.7	38.8	50.5	58.6	70.5

(a) Child, aged and total dependency ratios in 1993 were 32.6, 17.5 and 50.1 respectively per 100 persons of working age.

For all series the future child dependency ratio declines while the aged dependency ratio rises. This is a continuation of a trend that has been evident for some decades. At the present time though, while already converging, the child dependency ratio (32.6 in 1993) is still almost twice that for the aged segment of the population (17.5 in 1993). The projections, however, show that, regardless of the various assumptions selected, convergence occurs and that the aged dependency ratio begins to exceed the child dependency ratio before the end of the projection period. For series with constant fertility (A,B, and D) this occurs in about the year 2026, while with rising fertility (Series C) it occurs about a decade later, in 2036.

Without overseas migration, the total dependency ratio rises to about 70.0 by the end of the projection period, 6 or 7 percentage points higher than for Series A to D. Again the pattern is one of stability until the second decade of the next century when the ratio begins to move sharply higher.

## STATE AND TERRITORY SUMMARY

### Total population

With the possible exception of Tasmania, the population of every State and Territory increases throughout the projection period, but with the rate of growth generally declining.

The most rapidly growing States and Territories are Queensland, Western Australia, the Northern Territory and the Australian Capital Territory, with notable features of this growth being continuing high net inter-state migration gains for Queensland and high fertility rates for the Northern Territory. The population of Queensland increases from 3.1 million in 1993 to between 5.4 and 6.2 million in the year 2041, and the population of Western Australia increases from 1.7 million in 1993 to between 2.7 and 3.0 million in 2041. Throughout the projection period Queensland's annual population increase in terms of numbers, exceeds that of any other State, and between the years 2026 and 2036 its total population begins to exceed Victoria's unless lower interstate migration gains are assumed (Series B). Queensland is the only State whose population size may double (Series C) over the projection period (see Table 8).

**TABLE 8. TOTAL NUMBER AND GROWTH RATES OF PROJECTED POPULATION OF STATES, TERRITORIES AND AUSTRALIA, SELECTED YEARS**

State/ Territory	2011				2041				
	1993	A	B	C	D	A	B	C	D
Population ('000)									
NSW	6,008.8	6,916.4	7,018.2	7,058.4	7,131.8	7,941.4	8,260.4	8,549.8	8,728.9
Vic	4,462.1	4,934.4	5,024.5	5,035.4	5,064.3	5,282.2	5,636.8	5,688.8	5,750.8
Qld	3,112.6	4,242.2	4,128.1	4,324.9	4,311.5	5,853.8	5,419.3	6,237.4	6,101.2
SA	1,461.7	1,580.3	1,600.3	1,609.2	1,602.7	1,622.3	1,683.8	1,736.4	1,701.3
WA	1,677.6	2,138.7	2,092.7	2,182.3	2,190.8	2,786.2	2,651.4	2,983.0	2,973.5
Tas	471.7	520.5	499.4	531.1	522.9	537.7	471.2	581.1	546.4
NT	168.3	221.3	210.6	227.5	224.0	294.9	260.6	325.3	304.3
ACT	298.9	398.5	378.6	407.2	404.2	540.0	474.9	577.6	560.3
<b>Australia</b>	<b>17,661.5</b>	<b>20,952.4</b>	<b>20,952.4</b>	<b>21,376.0</b>	<b>21,452.2</b>	<b>24,858.4</b>	<b>24,858.4</b>	<b>26,679.1</b>	<b>26,666.6</b>
1993-2011									
2011-2041									
Average annual growth rate (per cent) (a)									
NSW	0.78	0.87	0.90	0.96	0.46	0.54	0.64	0.68	

Vic	0.56	0.66	0.67	0.71	0.23	0.38	0.41	0.42
Qld	1.74	1.58	1.84	1.83	1.08	0.91	1.23	1.16
SA	0.43	0.50	0.54	0.51	0.09	0.17	0.25	0.20
WA	1.36	1.24	1.47	1.49	0.89	0.79	1.05	1.02
Tas	0.55	0.32	0.66	0.57	0.11	-0.19	0.30	0.15
NT	1.53	1.25	1.69	1.60	0.96	0.71	1.20	1.03
ACT	1.61	1.32	1.73	1.69	1.02	0.76	1.17	1.09
<b>Australia</b>	<b>0.95</b>	<b>0.95</b>	<b>1.07</b>	<b>1.09</b>	<b>0.57</b>	<b>0.57</b>	<b>0.74</b>	<b>0.73</b>

(a) Exponential rate of growth.

The population of Victoria increases from 4.5 million in 1993 to between 5.3 and 5.8 million in the year 2041, but with average annual rates of growth well below the Australian average. The rate of growth of the population of New South Wales, though not as low as Victoria's, is also below average, with the total population rising from 6.0 million in 1993 to between 7.9 and 8.7 million in 2041. It therefore retains its position as the State with the largest population.

The population of South Australia rises from 1.5 million in 1993 to about 1.7 million in the year 2041 with annual rates of growth falling to between 0.1 and 0.2 per cent, comparable with those for Tasmania. South Australia and Tasmania have the lowest rates of growth of the States and Territories, both growing at about half the national average rate initially but slowing to very low rates in the latter part of the projection period. The population of Tasmania, which was 0.5 million in 1993 rises only if there are no net interstate migration losses (Series A, C and D). In this case the population will be between 0.5 and 0.6 million in 2041. If net interstate migration losses occur (Series B) the population rises initially but then begins declining, returning in the year 2041 to where it was in 1993.

The population of the Northern Territory and the Australian Capital Territory both increase at rates above the national average and comparable to that of Western Australia, if not Queensland. The population of the Northern Territory, which commences at 168,000 in 1993 rises to between 260,000 and 325,000 in the year 2041 depending on which range of assumptions is selected. The population of the Australian Capital Territory, which was 299,000 in 1993, rises to between 475,000 and 578,000 in the year 2041.

## Population distribution

Comparison between the proportionate State/Territory distribution of the population in 1993 and the year 2041 shows losses for all Series in the share of the national population living in New South Wales, Victoria, South Australia and Tasmania and gains in all Series in the share of the national population living in Queensland, Western Australia, the Northern Territory and the Australian Capital Territory (see Table 9). New South Wales maintains its position as the most populous State, but Series A, C and D result in the replacement of Victoria as the second ranking State by Queensland (between the years 2026 and 2036). All Series result in Tasmania being challenged by the Australian Capital Territory in its position in the ranking of the States and Territories by population size.

TABLE 9. PERCENTAGE DISTRIBUTION OF PROJECTED AUSTRALIAN POPULATION BY STATE AND TERRITORY

The timeline diagram illustrates the progression of four categories (A, B, C, D) over time. The horizontal axis represents the years 1993, 2011, and 2041. Category A is present in 1993, 2011, and 2041. Category B is present in 1993, 2011, and 2041. Category C is present in 1993, 2011, and 2041. Category D is present in 2011 and 2041.

Year	A	B	C	D
1993	Present			
2011	Present	Present	Present	Present
2041	Present	Present	Present	Present

NSW	34.0	33.0	33.5	33.0	33.2	31.9	33.2	32.0	32.7
Vic	25.3	23.6	24.0	23.6	23.6	21.2	22.7	21.3	21.6
Qld	17.6	20.2	19.7	20.2	20.1	23.5	21.8	23.4	22.9
SA	8.3	7.5	7.6	7.5	7.5	6.5	6.8	6.5	6.4
WA	9.5	10.2	10.0	10.2	10.2	11.2	10.7	11.2	11.2
Tas	2.7	2.5	2.4	25.0	2.4	2.2	1.9	2.2	2.0
NT	1.0	1.1	1.0	1.1	1.0	1.2	1.0	1.2	1.1
ACT	1.7	1.9	1.8	19.0	1.9	2.2	1.9	2.2	2.1
<b>Australia</b>	<b>100.0</b>								

## Median age

The median age of the population of all States and Territories rises steadily throughout the projection period, passing 40 years in most States by the year 2041 (see Table 10).

**TABLE 10. MEDIAN AGE OF PROJECTED POPULATION, STATES, TERRITORIES AND AUSTRALIA**

State/ Territory	1993	2011				2041			
		A	B	C	D	A	B	C	D
NSW	33.45	38.26	38.09	37.53	37.86	41.74	41.45	39.18	40.99
Vic	33.19	38.53	38.28	37.82	38.20	42.64	42.10	40.04	41.92
Qld	32.41	37.25	37.55	36.57	37.10	41.24	41.77	39.07	40.98
SA	34.32	39.93	39.76	39.32	39.73	44.80	44.44	42.24	44.28
WA	32.27	37.07	37.31	36.35	36.84	41.02	41.32	38.70	40.57
Tas	33.24	39.31	40.00	38.59	39.23	44.98	46.81	41.94	44.74
NT	27.56	31.46	31.59	30.62	31.46	34.78	34.98	32.36	34.76
ACT	30.00	34.60	35.03	33.98	34.51	39.10	39.73	37.22	38.94
<b>Australia</b>	<b>33.02</b>	<b>37.99</b>	<b>37.99</b>	<b>37.28</b>	<b>37.71</b>	<b>41.84</b>	<b>41.84</b>	<b>39.40</b>	<b>41.29</b>

The choice of fertility and overseas migration assumptions has an important bearing on median age, and Series A and B, where the rejuvenating effect of these two components is at a minimum, result in the most rapid increases in the median age in most States. This is particularly noticeable in those States where assumed fertility rates are below the national average, such as South Australia and the Australian Capital Territory.

The effect of interstate migration on age structure is more complex depending on both the size of net flows relative to population and whether they are positive or negative, as well as on the age profiles of those flows. Each of these features varies from State to State.

The overall result is high median ages in South Australia and Tasmania of up to approximately 44 years at the end of the projection period, followed by the middle ranking States of New South Wales, Victoria, Queensland and Western Australia of up to about 41 years.

These are followed by the Australian Capital Territory at about 39 years and the Northern Territory at about 35 years. Although the median ages are rising for all States and Territories, the ranking in order of size only changes in the case of Tasmania which currently belongs to the middle ranking group. The rejuvenating effect on age structure of Tasmania's high fertility rates is insufficient to offset the loss of young people moving interstate and the tendency for Tasmania to attract settlers of retirement age. Tasmania's median age could, therefore, rise to be as high as, or even higher than any other State or Territory.

## **FURTHER INFORMATION AND CONSULTATION**

This article has been extracted from Projections of the Populations of Australia, States and Territories 1993 to 2041 (cat. no. 3222.0) which uses varying assumptions about births, deaths, overseas and interstate migration to project population growth and distribution to the year 2041. A customised projection service at most geographic levels down to statistical local areas can be provided to meet clients' requirements.

This feature article was contributed by John Paice, former Director of Demography Section, ABS.

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